



# Cleanwashing

How States Count Polluting Energy Sources as Renewable

# About Food & Water Watch

**F**ood & Water Watch champions healthy food and clean water for all. We stand up to corporations that put profits before people, and advocate for a democracy that improves people's lives and protects our environment. We envision a healthy future for our families and for generations to come, a world where all people have the wholesome food, clean water and sustainable energy they need to thrive. We believe this will happen when people become involved in making democracy work and when people, not corporations, control the decisions that affect their lives and communities.

Food & Water Watch has state and regional offices across the country to help engage concerned citizens on the issues they care about. For the most up-to-date contact information for our field offices, visit [foodandwaterwatch.org](http://foodandwaterwatch.org).

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## How States Count Polluting Energy Sources as Renewable

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## Executive Summary

Twenty-nine states and the District of Columbia have mandatory programs to encourage renewable electricity generation. These Renewable Portfolio Standard (RPS) programs set renewable electricity goals and determine which energy sources qualify as renewable. Such programs can be part of the energy policy portfolio to create powerful incentives to shift to renewable energy.

Unfortunately, most RPS programs have not been robust enough to foster a rapid transition to clean, renewable energy. About half the states aimed to achieve only up to 25 percent renewable power. And almost all states allowed combustion-based energy sources including wood burning and the burning of waste methane (so-called biogas) to meet RPS goals.

Food & Water Watch evaluated each of the state RPS programs based on whether the program goals would target 100 percent renewable electricity, whether the programs included any of six dirty energy sources and

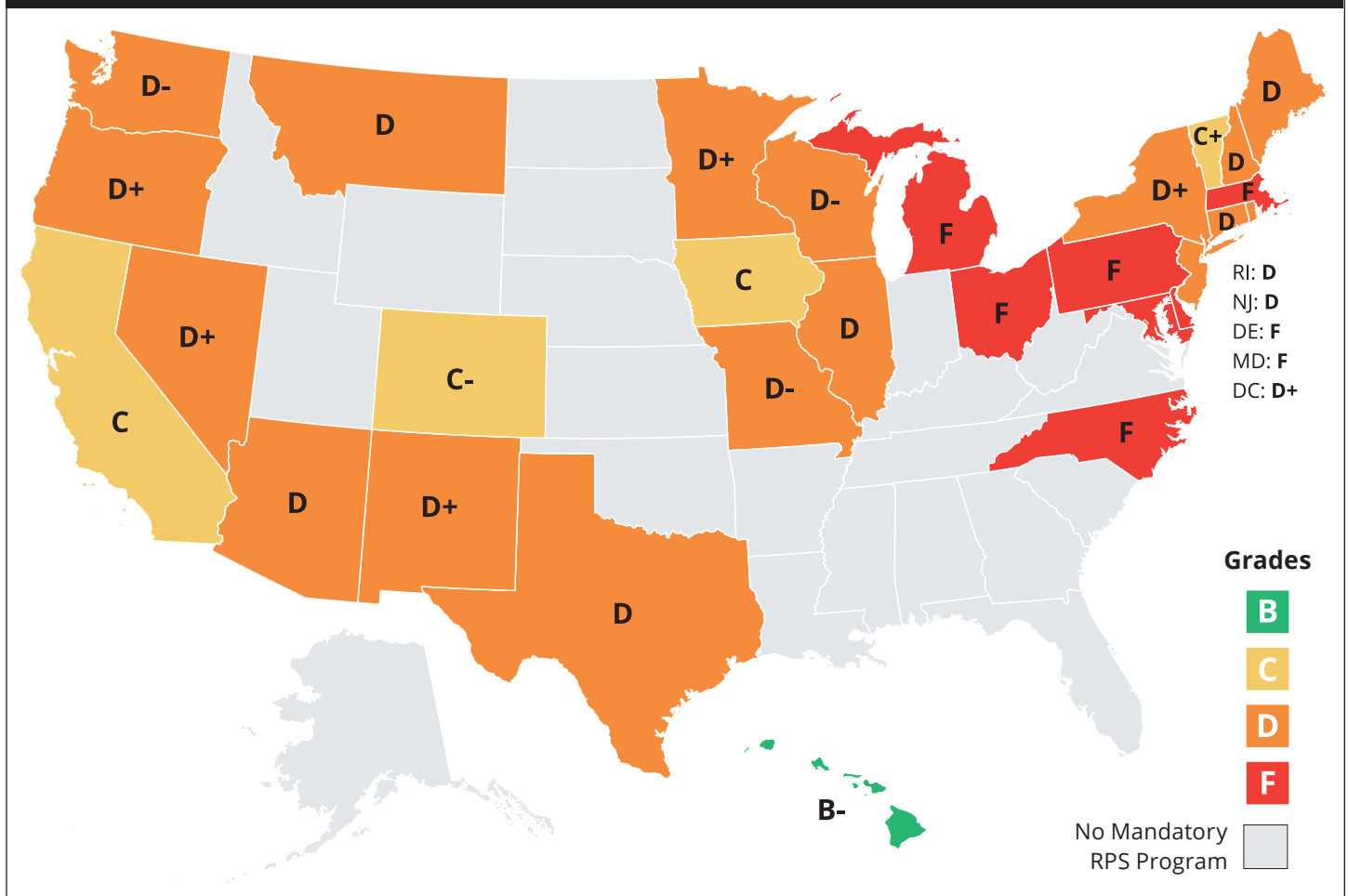
the misguided policy of renewable energy credits, and whether the states were on track to achieve 100 percent wind, solar and geothermal electricity generation within two decades — a renewable transition time frame necessary to stop the worst and potentially irreversible effects of climate change.

Only a handful of states were projected to generate or supply the majority of their electricity from wind, solar and geothermal sources by 2038; less than half would generate even 25 percent of their electricity from these sources by 2038. Almost all states failed to measure up to each of these metrics (see Map 1 and Appendix Table 1).

**Highest overall performing states:** Hawaii and Vermont received the highest overall relative grades (B- and C+, respectively), because of their higher target goals, fewer dirty energy sources in their portfolios and clean, renewable power generation trends.

**Weakest overall performing states:** Seven states were weak across all three metrics — lower RPS targets, more dirty energy sources in their portfolios and little

**MAP 1: Food & Water Watch's Overall Grades for Mandatory State RPS Programs**





shift to wind, solar and geothermal energy: Delaware, Maryland, Massachusetts, Michigan, North Carolina, Ohio and Pennsylvania.

States without mandatory RPS programs should adopt and implement them, and states with existing policies must strengthen them to make the goals more robust and to expel dirty energy sources. The states with the most ambitious targets and the fewest dirty energy sources in their portfolios generally were the states that were installing more wind, solar and geothermal energy production. Stronger RPS programs can drive the essential rapid shift to clean, renewable energy that is necessary to halt the most catastrophic effects of climate change.

## Introduction to Renewable Portfolio Standards

Mandatory Renewable Portfolio Standard (RPS) policies have encouraged the expansion of renewable electricity generation in the United States. These state-based programs require energy utilities to increase how much electricity they deliver from renewable sources. By 2018, 29 states and the District of Columbia had mandatory RPS programs, covering utilities responsible for 56 percent of U.S. electricity sales.<sup>1</sup>

These programs have substantially increased renewable energy production. RPS mandates drove about

50 percent of the increase in U.S. renewable electricity generation from 2000 to 2016.<sup>2</sup> But the effectiveness of the RPS programs has been hampered by lackluster renewable targets and overly inclusive renewable energy definitions that allow dirty power sources — including burning garbage or burning methane from factory farms — to be counted toward meeting the RPS goals.

America must rapidly shift to 100 percent genuinely clean and renewable power to avoid the worst effects of climate change. The Department of Energy estimated that current RPS programs could raise the portion of U.S. energy from renewables to only 40 percent by 2050.<sup>3</sup> Although today's RPS standards are far from ideal, the fossil fuel industry and right-wing front groups have tried to eliminate or unravel RPS programs across the country.<sup>4</sup>

Climate-destroying fossil fuels have continued to generate most U.S. electricity. In 2016, more than two-thirds of utility-scale electricity was fueled by coal, natural gas and oil, and only 8 percent was generated by wind, solar and geothermal power.<sup>5</sup> Robust RPS programs could dramatically increase the share of power generated by renewable energy. States with existing programs must raise their targets to 100 percent renewable energy within a short timeline and exclude dirty energy sources, and states without renewable programs must adopt similarly strong RPS policies.

## The rise and composition of RPS programs

The federal government began to deregulate the electric utility industry in the late 1970s, in part to encourage renewable electricity, but neither the wind nor solar industries grew much over the next two decades.<sup>6</sup> In 1983, Iowa passed the first mandatory RPS requiring the purchase of 105 megawatts of renewable energy by investor-owned Iowa utilities.<sup>7</sup> Starting in the late 1990s, more states enacted RPS programs (see Fig. 1).<sup>8</sup> By 2016, these RPS programs encouraged utilities to produce 283 million megawatt-hours of new, renewable energy — enough to power 23 million households — accounting for over half of the renewable energy growth since 2000.<sup>9</sup>

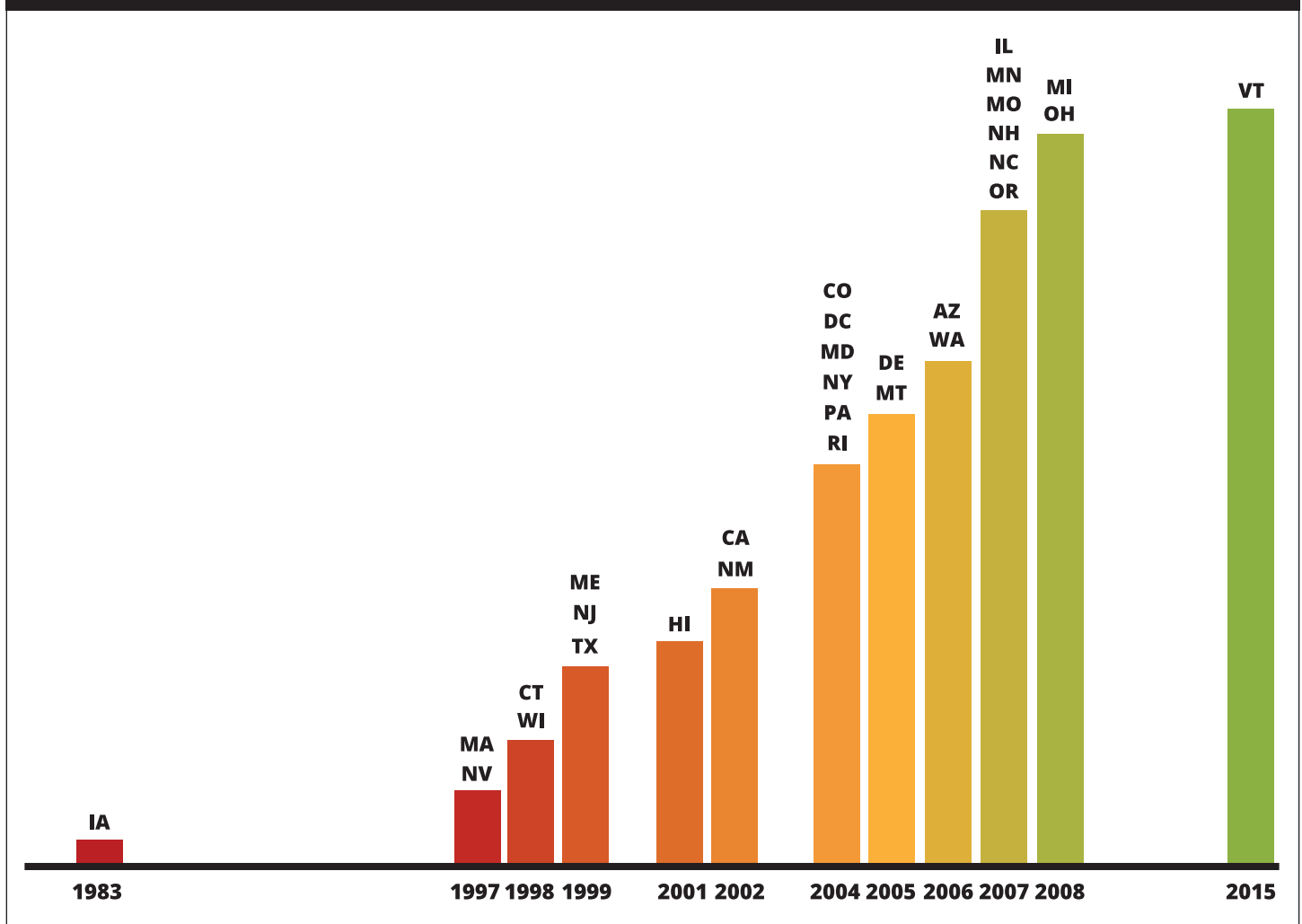
All mandatory RPS programs have required a certain portion of the electricity to come from “renewable” sources. The programs set a target date to achieve the renewable power goal and define which sources of energy are included in the RPS. The RPS definitions of

“renewable” vary; all states allow solar and wind, but some also allow dirty energy sources such as municipal waste incineration or even coal.

Each state has different requirements for the share of renewable electricity. Some RPS mandates apply only to the largest utilities in the state or have requirements based on the size of the utilities. Most require utilities to generate or purchase a minimum percentage of electricity from renewable sources, but Iowa and Texas require utilities to purchase or generate a specific number of megawatts of renewable energy.

Many RPS programs require a certain percentage of renewable energy to be produced in-state,<sup>10</sup> which directly benefits state residents by reducing greenhouse gas emissions and air pollution. Even Washington, D.C. requires utilities to source a percentage of the RPS portfolio from solar energy produced locally, despite the city’s small geographic footprint limiting local energy production.<sup>11</sup>

**FIG. 1: Adoption of State Renewable Portfolio Standards by Year • CUMULATIVE COUNT**



Almost all states are meeting their RPS goals — or even exceeding them — suggesting that the targets are insufficiently ambitious.<sup>12</sup> Leading renewable energy-producing states such as Iowa and Texas, driven in part by government subsidies, have installed wind turbines with the capacity to generate far more renewable energy than has been required by their weak RPS goals.<sup>13</sup> States must bolster RPS targets to 100 percent renewable power within the next two decades.

A strong RPS program can be an essential part of state renewable energy policy, along with energy efficiency standards, tax incentives and grants for installing renewable energy and other programs. But these renewable incentives can be undercut by other policy and regulatory decisions that encourage the expansion of natural gas or oil exploration and fossil fuel infrastructure.

Most states' RPS programs have overly broad definitions of renewable power. Many include dirty power sources reliant on combustion (coal, wood, municipal waste and methane from factory farms or sewage treatment plants) that produce greenhouse gases and other air pollutants. Almost all states allow utilities to purchase renewable energy "credits" (RECs), instead of producing actual renewable energy, while continuing to generate the same amount of fossil-fueled electricity. States must expel dirty energy sources from their RPSs to shift to genuinely clean, renewable energy production.

Food & Water Watch assessed each RPS program based on the strength of the target (the renewable percentage goal), the inclusion of dirty energy sources and how well it was projected to shift the energy mix to wind, solar and geothermal power sources over the coming decades.

## **Strength of the RPS target goal and time frame**

Strong RPS policies would set a target of 100 percent renewable electricity generation, which is imperative to avoiding the worst effects of climate change. This goal should be achieved within a short, two-decade horizon or sooner. Already, the planet is 1 degree Celsius (°C) warmer than before the Industrial Revolution, which spurred our crippling fossil fuel dependency.<sup>14</sup> Nations agreed at the 2015 Climate Change Conference in Paris that preventing the planet from warming 1.5 °C above pre-industrial levels "would significantly reduce the risks and impacts of climate change."<sup>15</sup> As the



concentration of greenhouse gases in the atmosphere exceeds crucial thresholds, the effect on climate change could be sudden and potentially irreversible.<sup>16</sup>

The Intergovernmental Panel on Climate Change conservatively estimated that the planet could emit only 400 billion metric tonnes more carbon dioxide (CO<sub>2</sub>)

after 2011 to have a two-out-of-three chance of avoiding the catastrophic 1.5 °C rise in temperature.<sup>17</sup> By the end of 2016, the global economy had already released 220 billion tonnes more CO<sub>2</sub> into the atmosphere from burning fossil fuels.<sup>18</sup> Currently, global CO<sub>2</sub> emissions from burning fossil fuels amount to close to 40 gigatonnes annually.<sup>19</sup> Reducing these emissions by about 20 percent every year, year after year, would drive emissions to near zero within two decades.<sup>20</sup>

Most state RPS targets are too weak to halt or reverse climate change. None of the current programs would achieve 100 percent renewable energy within the next two decades. The typical program would require only 25 percent of power to come from renewable sources by 2025. The strongest RPS targets include Hawaii's 100 percent target phased in by 2045 and Vermont's 75 percent target by 2032. Only seven states' targets aim to ensure that at least half of all power would come from renewable sources, including Hawaii (100 percent), Vermont (75 percent), California (50 percent), New Jersey (50 percent), New York (50 percent), Oregon (50 percent) and Washington, D.C. (50 percent) (see Table 1).

## Six dirty renewable energy sources (and one flawed policy) included in many state renewable portfolios

Every state allowed some dirty renewable energy sources in their RPS. Food & Water Watch assessed state renewable portfolios on their explicit inclusion of six dirty renewable energy sources and whether they allowed renewable energy credits (RECs) to meet their RPS goals. The six dirty energy sources — so-called clean coal, nuclear power, wood-burning power, waste incineration (municipal garbage and poultry litter), waste methane burning (from landfills, sewage treatment plants and factory farm manure) and paper mill residue (known as black liquor) — and RECs must be removed from all state renewable portfolios.

The inclusion of these dirty sources and RECs discourages states from shifting to truly clean, renewable energy, like wind, solar and geothermal power, that must be the bulwark sources to curb and reverse climate change. The existence of dirty energy sources and RECs under state RPS programs does not necessarily mean that these energy sources deliver substantial amounts of electricity to meet RPS goals, but their inclusion encourages the development of power plants that threaten the climate and environment.

**TABLE 1: RPS Target Goals and Timelines<sup>21</sup>**

State	Target Year	Target Goal	Relative Grade
Arizona	2025	15%	F
California	2030	50%	C
Colorado	2020	30%	D
Connecticut	2030	48%	C
Delaware	2026	25%	D
Hawaii	2045	100%	A
Illinois	2025	25%	D
Iowa <sup>†</sup>	2025	0.5%	F
Maine	2022	40%	D+
Maryland	2020	25%	D
Massachusetts <sup>‡</sup>	2020	15%	F
Michigan	2021	15%	F
Minnesota	2025	25%	D
Missouri	2021	15%	F
Montana	2015	15%	F
Nevada	2025	25%	D
New Hampshire	2025	25%	D
New Jersey	2030	50%	C
New Mexico	2020	20%	F
New York	2030	50%	C
North Carolina	2021	13%	F
Ohio	2026	13%	F
Oregon	2040	50%	C
Pennsylvania	2021	18%	F
Rhode Island	2035	40%	D+
Texas <sup>†</sup>	2025	6%	F
Vermont	2032	75%	B+
Washington	2020	15%	F
Washington, D.C.	2032	50%	C
Wisconsin	2015	10%	F
<b>Average</b>	<b>2026</b>	<b>30%</b>	<b>D</b>
<b>Typical (Median)</b>	<b>2025</b>	<b>25%</b>	<b>D</b>

<sup>\*</sup> State timeline targets are set at the states' statute.

<sup>†</sup> Iowa and Texas statutes establish a renewable capacity target (in megawatts); percent target is based on the capacity as a share of projected state generation at the timeline goal year. Iowa was projected to the typical 2025 as it has no statutory timeline.

<sup>‡</sup> Massachusetts target increases 1 percent annually after 2020. Relative grades are curved to give average performers a "C." See Methodology on page 11.



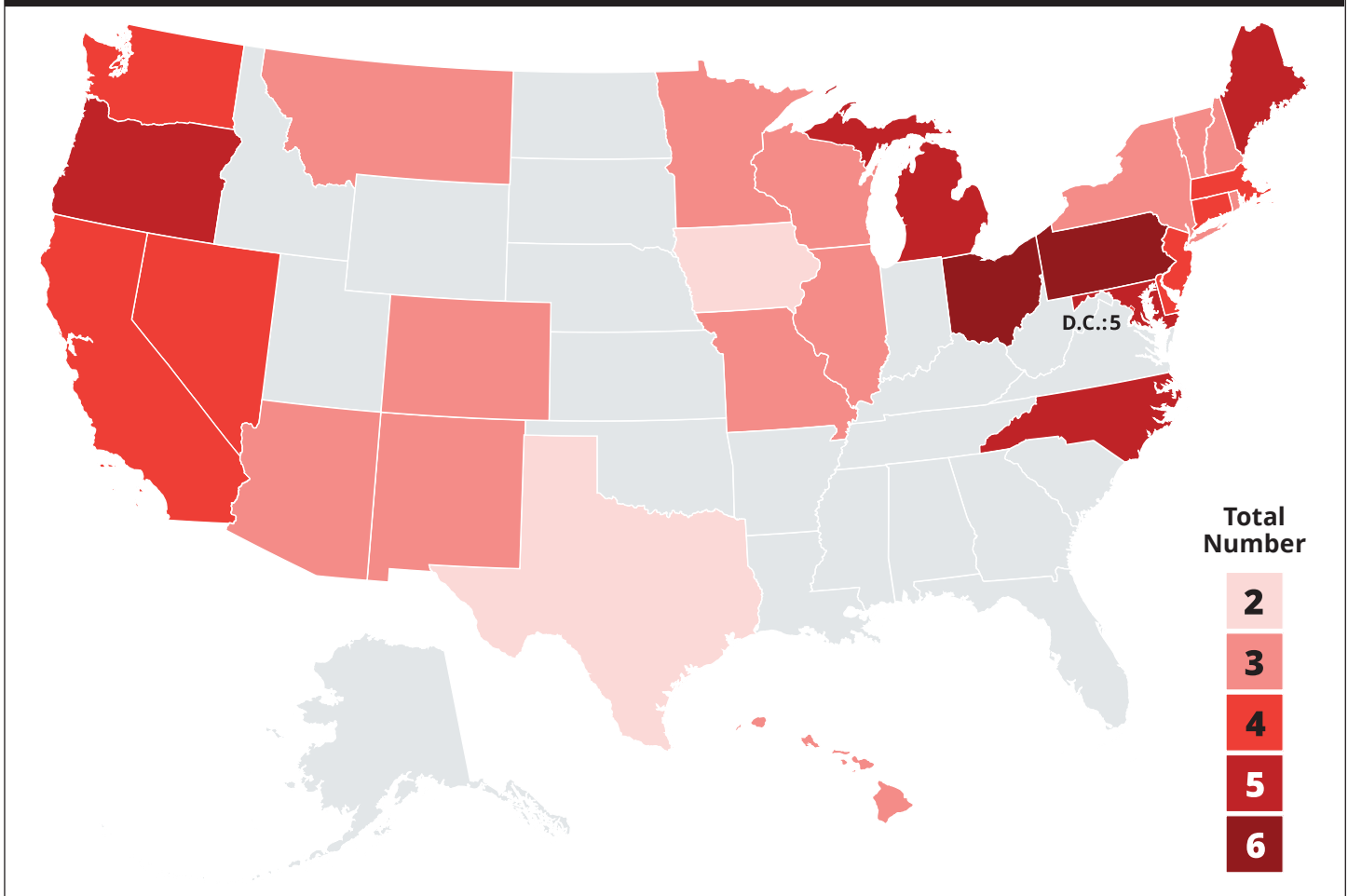
Average state RPS programs allowed four of these seven dirty power sources or policies in their RPS. All of the states included some form of waste methane and all but two included RECs in their RPS programs, and 90 percent of the states included wood burning as a renewable energy source. Ohio and Pennsylvania each allowed six dirty power sources or policies, and Maine, Maryland, Michigan, North Carolina, Oregon and Washington, D.C. allowed five dirty sources or policies in their RPS programs (see Map 2).

**Waste incineration (trash and poultry litter):** Over one-third (12) of the RPS programs allowed fuel from municipal trash incineration,<sup>22</sup> and two states allowed poultry litter incineration.<sup>23</sup> In 2014, about 66 billion pounds of garbage was incinerated to produce energy.<sup>24</sup> Incinerating trash produces toxic air emissions and contributes to climate change. In 2011, the New York Department of Environmental Conservation found that incinerators emit nearly 14 times more mercury than coal per megawatt.<sup>25</sup> Garbage incineration may produce more greenhouse gas emissions per megawatt than

some fossil fuels.<sup>26</sup> New Jersey has been meeting its RPS goals with almost as much “renewable” energy from garbage incineration as from solar power.<sup>27</sup> In Maryland, garbage incineration has been the leading source of in-state renewable energy in several recent years.<sup>28</sup> And Ohio sources “renewable” energy from burning tires to fulfill its RPS.<sup>29</sup>

Maryland and North Carolina explicitly allowed burning poultry litter in their RPS. Poultry litter incinerators can emit more carbon monoxide, particulate matter, nitrogen oxides (NO<sub>x</sub>) and CO<sub>2</sub> per megawatt than new coal plants.<sup>30</sup> The North Carolina RPS has required utilities to obtain at least 900,000 megawatt-hours of electricity from poultry waste since 2014, incentivizing the construction of manure-to-energy plants and the expansion of factory farms to fuel these expensive facilities.<sup>31</sup> Maryland and Minnesota also have pursued the construction of poultry litter incinerators to address waste from factory farms.<sup>32</sup> In 2017, Xcel Energy announced that it wanted to stop buying power from turkey litter incineration and wood-burning power facilities in

**MAP 2: Number of Dirty Energy Sources and RECs Included in State Renewable Portfolio Standards**



Minnesota because it cost 10 times more than wind power, and abandoning these dirty energy sources could save customers \$700 million over 11 years.<sup>33</sup>

**Waste methane (factory farm manure digesters and landfill or sewage treatment gas):** Every RPS program included burning waste methane from landfills, municipal waste and/or sewage treatment waste,<sup>34</sup> and 25 states included energy produced from animal waste, such as manure digesters (burning the methane released from factory farm manure).<sup>35</sup> This group of gases — from animal waste, manure digesters, landfills and municipal waste — is often referred to as biogas.<sup>36</sup> Biogas is primarily methane and is essentially indistinguishable from fracked natural gas, with many of the same problems.<sup>37</sup> Burning biogas releases greenhouse gases such as CO<sub>2</sub> and harmful pollutants like NO<sub>x</sub>.<sup>38</sup>

Although few biogas facilities were connected to natural gas pipeline infrastructure, building out these connections would only compound methane leaks — a significant source of potent greenhouse gas emissions.<sup>39</sup> These expensive, inefficient and polluting facilities primarily generated power for the facilities themselves — they burn methane to power the methane digester. For example, approximately two-thirds of the energy from sewage treatment gas digesters and half the energy from factory farm digesters may be needed to power the digesters themselves.<sup>40</sup> California has promoted biogas as renewable energy, with some companies, like SoCalGas, calling it “renewable natural gas.”<sup>41</sup>

Manure digesters have received substantial government subsidies, and methane combustion emissions, methane leaks, accidental manure spills and deadly explosions mean that digesters provide neither clean nor safe energy.<sup>42</sup> Digester subsidies and on-farm power generation create incentives to expand the unsustainable, environmentally destructive and socially unjust system of food production to create more and larger factory farms.

**Wood-burning power:** Nearly all (27 of 30) of the RPS programs included wood-fired power plants.<sup>43</sup> Most states included wood in their definition of biomass energy, which implies that it is natural and not environmentally destructive. Processing, transporting and burning wood all produce greenhouse gas emissions; emissions from burning wood can be greater than those from coal.<sup>44</sup> Forestry companies manufacture wood pellets for power plants from tree branches, from waste wood and even from harvesting whole trees.<sup>45</sup> In the southeastern United States, forestry companies

have been increasingly clearcutting forests to supply wood pellets to European power plants.<sup>46</sup> One mill in Ahoskie, North Carolina is believed to source more than 50 percent of its wood from forested wetlands.<sup>47</sup> Harvesting whole, healthy trees for power plants increases net carbon emissions more than burning fossil fuels.<sup>48</sup>

**Paper mill residues (black liquor):** Over one-third (12) of the RPS programs specifically allowed paper mill residues — sometimes explicitly identifying the use of black liquor.<sup>49</sup> Black liquor is a toxic industrial waste from the paper milling process that can be burned for electricity.<sup>50</sup> Burning black liquor emits air pollutants including particulate matter and greenhouse gases.<sup>51</sup> In 2016, black liquor was the third largest source of renewable energy covered under Ohio’s RPS and the second largest source of Maryland’s renewable energy credits, accounting for nearly one-fourth of RECs used to meet its RPS.<sup>52</sup>

**Nuclear power:** Ohio was the only state that allowed nuclear energy in its RPS.<sup>53</sup> Nuclear energy facilities have had dozens of dangerous accidents, including catastrophic meltdowns in Chernobyl and Fukushima.<sup>54</sup> Processing nuclear material creates vast quantities of radioactive waste, which operators do not have the resources to safely store.<sup>55</sup> In May 2017, a shuttered Washington state facility, which for decades had “temporarily” stored nuclear waste, experienced a major breach that could have released radiation into the environment.<sup>56</sup>

**So-called clean coal:** Pennsylvania and Ohio were the only states that allowed coal in their RPS.<sup>57</sup> Although politicians and industry groups have promoted “clean coal,” mining and burning coal damages the environment and releases air and climate pollutants (including sulfur dioxide, CO<sub>2</sub>, NO<sub>x</sub> and mercury), and waste ash from power plants threatens local communities.<sup>58</sup> There is no practical or economical way to burn coal and capture the greenhouse gas emissions.<sup>59</sup>

**Renewable energy credits (RECs):** Nearly all (28 of 30) RPS programs included renewable energy credits.<sup>60</sup> Utilities can buy credits representing the environmental benefits of renewable energy and count them toward RPS goals instead of generating renewable electricity.<sup>61</sup> Every megawatt of electricity that a wind farm produces, for example, also generates one REC, which utilities buy to meet RPS targets. The use of RECs diminishes the potential benefits of renewable energy for the environment and job creation. A state can continue to burn polluting fuels while sourcing renewable energy credits from elsewhere. States like Maryland source most of their renewable energy with out-of-state RECs

instead of ramping up in-state production of solar, wind and geothermal energy.<sup>62</sup> Conversely, North Carolina prohibits more than 25 percent of the state’s RPS from being met through out-of-state RECs.<sup>63</sup>

## Projecting the effectiveness of RPS programs in meeting goals with clean renewables and in achieving 100 percent renewables in the next two decades

Most states were not on track to meet their RPS goals through wind, solar and geothermal power alone, and almost no states were on track to deliver 100 percent

clean, renewable power by 2038 (see Table 2).<sup>64</sup> While the installation of wind, solar and geothermal power has accelerated rapidly in recent years, the Trump administration’s attack on renewable energy will likely curb the adoption of these needed energy sources.<sup>65</sup>

This assessment projected the share of wind, solar and geothermal energy production (as a percentage of electricity generation and as a percentage of retail electricity sales) based on the past 10-year linear trend. The projected shortfalls for wind, solar and geothermal electricity suggest that lackluster state RPS programs are not encouraging the transition to clean, renewable energy. For most states, the policies were not tough enough to achieve the programs’ modest goals.

**TABLE 2: Assessing Wind, Solar and Geothermal Achieving RPS Goals and 100 Percent Clean, Renewable Energy in 20 Years**

State	Wind, Solar and Geothermal and State RPS Targets				Wind, Solar and Geothermal by 2038	
	State RPS Target Year	State RPS Target %	Wind, Solar and Geothermal Energy by Target Year†	Achieve Target	Projected Wind, Solar and Geothermal Energy by 2038†	Relative Grade for Projected Real Renewables by 2038
Arizona	2025	15%	20%	Y	37%	D
California	2030	50%	62%	Y	82%	B
Colorado	2020	30%	26%	N	57%	C
Connecticut	2030	48%	1%	N	2%	F
Delaware	2026	25%	4%	N	6%	F
Hawaii	2045	100%	56%	N	46%	C-
Illinois	2025	25%	15%	N	24%	D-
Iowa*	2025	0.5%	100%	Y	100%	A
Maine	2022	40%	16%	N	51%	C
Maryland	2020	25%	3%	N	9%	F
Massachusetts	2020	15%	5%	N	15%	F
Michigan	2021	15%	10%	N	17%	F
Minnesota	2025	25%	31%	Y	49%	C-
Missouri	2021	15%	3%	N	5%	F
Montana	2015	15%	11%	N	35%	D
Nevada	2025	25%	39%	Y	66%	C+
New Hampshire	2025	25%	8%	N	13%	F
New Jersey	2030	50%	6%	N	9%	F
New Mexico	2020	20%	21%	Y	46%	C-
New York	2030	50%	8%	N	10%	F
North Carolina	2021	13%	5%	N	13%	F
Ohio	2026	13%	3%	N	4%	F
Oregon	2040	50%	50%	Y	47%	C-
Pennsylvania	2021	19%	4%	N	8%	F
Rhode Island	2035	40%	2%	N	2%	F
Texas	2025	6%	24%	Y	39%	D+
Vermont	2032	75%	42%	N	54%	C
Washington	2020	15%	11%	N	22%	F
Washington, D.C.	2032	50%	50%	Y	50%	C
Wisconsin	2015	10%	3%	N	8%	F
<b>Average</b>	<b>2026</b>	<b>30%</b>	<b>21%</b>	<b>N</b>	<b>31%</b>	<b>D</b>
<b>Typical (Median)</b>	<b>2025</b>	<b>25%</b>	<b>11%</b>	<b>N</b>	<b>23%</b>	<b>F</b>

\* Iowa projection capped at 100 percent and Iowa established no target year, so it is set at the median 2025.

† Average of the linear projection of percent of electricity generated by wind, solar (including distributed rooftop solar) and geothermal of all utility-scale generation (including rooftop solar) based on 2007-2016 10-year trend, and linear projection of percent of retail electricity sales from wind, solar (including rooftop solar) and geothermal based on 2007-2016 10-year trend. Projection extended to the RPS target year and to 2038. See Methodology on page 11.

## **Wind, solar and geothermal energy will not fulfill the majority of RPS goals**

Just under one-third (9 of 30) of the RPS programs were likely to meet even their weak target-year goals with wind, solar and geothermal energy alone. Most of these states had low renewable energy goals (25 percent or less) and had ample wind (Iowa, Minnesota and Texas) or solar (Arizona, Nevada and New Mexico) renewable resources.<sup>66</sup> Only California, Oregon and Washington, D.C. were projected to meet or exceed their 50 percent renewable goals with wind, solar and geothermal alone within their target time frames.

More than two-thirds (21 of 30) of RPS programs were not projected to meet their RPS goals with wind, solar and geothermal energy. Two state targets have already passed (Montana and Wisconsin) and did not generate sufficient clean, renewable energy to meet their RPS requirements. By 2015, less than 11 percent of Montana's power and 3 percent of Wisconsin's power came from wind, solar and geothermal.<sup>67</sup> Eleven other states had low renewable energy targets (25 percent or less) that were not projected to be met by their target timelines with genuinely clean renewables: Delaware, Illinois, Maryland, Massachusetts, Michigan, Missouri, New Hampshire, North Carolina, Ohio, Pennsylvania and Washington.

## **Few states were projected to approach 100 percent clean, renewable power over the next 20 years**

Only Iowa was projected to source all of its electricity (generation-consumption average) from wind, solar or geothermal by 2038 (mostly wind power). Six other states were projected to source the majority of their electricity from wind, solar or geothermal energy within



two decades: California (82 percent), Colorado (57 percent), Maine (51 percent), Nevada (66 percent), Vermont (54 percent) and Washington, D.C. (50 percent). Less than 10 percent of electricity from nine states was projected to come from clean renewables by 2038: Connecticut, Delaware, Maryland, Missouri, New Jersey, Ohio, Pennsylvania, Rhode Island and Wisconsin.

## **Conclusion and recommendations**

Strong mandatory RPS programs can be an important part of state policies to encourage the shift to renewable energy. The key provisions of each program determine the robustness of the incentive to shift to genuinely clean, renewable power. The states with the most ambitious targets and the fewest dirty energy sources in their portfolios generally installed more wind, solar and geothermal energy production.

All state RPS programs need to be strengthened to raise the target goal, expel dirty energy sources and eliminate renewable energy credits to ensure that the policies can promote a swift transition to genuine renewable energy. Food & Water Watch recommends:

- **States without RPS programs must adopt strong mandatory RPS programs:** Twenty-one states did not have mandatory RPS programs; these states should enact and implement strong RPS programs.
- **Raise RPS targets to 100 percent renewable energy:** States must raise their RPS goals to rapidly shift to clean, renewable power. The states with the higher targets are already shifting to more wind, solar and geothermal energy.
- **Accelerate the RPS target timeline:** RPS programs can only promote the imperative rapid transition to renewable energy if the 100 percent target is within a short time horizon.
- **Eliminate dirty energy sources and policies from the renewable portfolios:** Nearly all states allowed renewable energy credits, and every one included burning waste methane from factory farms, landfills and/or sewage treatment plants, which contributes to climate change and air pollution, reinforces the natural gas industry and maintains the nation's leaky gas infrastructure that is a major emitter of the potent climate gas methane. Most states included wood burning as an allowable RPS renewable energy source. States must expel dirty energy sources from their RPS programs.

## Methodology

Food & Water Watch analyzed the mandatory state RPS programs based on legislative, statutory, regulatory and executive branch documentation of the structure and eligible energy sources. As of December 2017, 29 states and the District of Columbia had mandatory RPS programs identified through the National Conference of State Legislatures' online database of state RPS programs as well as through the Database of State Incentives for Renewables & Efficiency (DSIRE) coordinated by North Carolina State University's Clean Energy Technology Center.<sup>68</sup> This analysis did not assess the eight states with non-binding, voluntary renewable energy goals (including Indiana, Kansas, North Dakota, Oklahoma, South Carolina, South Dakota, Utah, Virginia and the territory of Guam).<sup>69</sup> Nor did it include non-binding renewable energy commitments by utilities, such as the 2018 Michigan deal to increase the share of renewable energy to 25 percent by 2030.<sup>70</sup>

Food & Water Watch evaluated three metrics: the RPS percent goal; the inclusion of seven dirty power sources or policies; and the projected share of electricity from wind, solar and geothermal power over the next 20 years. Each state RPS program was assessed based on each metric, and an absolute and relative score was determined. The relative scores or grades for each metric and cumulatively were used to compare states to one another. This evaluated the states like a test graded on a "C" curve, so states with better relative performance received higher grades. The curve formula adjusted a middle score (the mean plus the standard deviation) to 75 percent and the lowest score to 50 percent, creating a relative, bell-shaped distribution for comparison. The cumulative score was the average of the curved scores for the three metrics.

*RPS target dates and goals:* Food & Water Watch used statutory targets for the timelines and percentages of renewable power under the state RPS programs. Iowa and Texas do not set percentages of renewable energy but rather megawatts of renewable power (105 megawatts and 10,000 megawatts, respectively). In these cases, Food & Water Watch determined the projected share of power from these target megawatts (by converting the megawatts to megawatt-hours and determining the linear projected target megawatt-hours share of total projected electricity production) by the target date. Iowa has no statutory date, so the projection was extended to 2025 (the average target

date), Texas' statutory date is 2025. Both these states have generated far more wind power than their RPS target goals. Massachusetts' target of 15 percent by 2020 also increases 1 percentage point annually every subsequent year, which was not accounted for in the evaluation.

*Energy sources and policies permitted under renewable portfolios:* Food & Water Watch examined the eligible energy sources in state RPS programs based on statutes, regulations and documentation from state public utility commissions or corporation commissions that implement the programs. To examine some states' historic RPS programs, Food & Water Watch compiled data from REC tracking databases and annual reports from public commissions. These seven identified dirty energy sources or policies in the portfolios (coal, nuclear, mill residue, wood, waste incineration, waste methane and renewable energy credits) are not the only dubious energy sources in the portfolios. For example, some RPS programs include large-scale hydroelectric dams, ethanol-fired power plants or other biomass that were not included in this analysis.

Food & Water Watch sought to be conservative in assessing eligible energy sources. The online REC tracking databases employ varying language and sometimes fail to adequately define terms.<sup>71</sup> The statutes and even regulations for some of the discussed eligible energy sources can be vague. This examination only includes energy sources that were specifically permitted or reported.

Waste incineration only included municipal solid waste and the specific identification of poultry litter incineration. California and Wisconsin's definition of renewable energy did not explicitly include garbage incineration, except garbage incinerators that were grandfathered into the respective programs.<sup>72</sup> Iowa's statute specified "...waste management, resource recovery, [and] refuse-derived fuels" as renewable energy sources, but did not explicitly include municipal solid waste, and waste incineration was not counted in Iowa's RPS.<sup>73</sup> Waste methane included landfill gas, biogas from municipal waste or landfill pyrolysis, and livestock waste, manure or anaerobic digestion of biomass.

Mill residue and black liquor only included states that specifically allowed or reported the use of pulping liquors or paper mill residues as eligible fuels or that responded to an inquiry confirming the use of black liquor in their RPS program. Illinois' official definition

of renewable energy does not include any reference to mill residue, paper waste or black liquor, but Food & Water Watch discovered through another source that the state allows black liquor, which state authorities confirmed falls under the statutory definition of “alternative sources of environmentally preferable energy.”<sup>74</sup> No state was counted as allowing black liquor if it identified only wood, wood waste or lumber mill residue as eligible fuel sources.

*Projected wind, solar and geothermal share of generation and consumption:* Food & Water Watch determined the in-state share of utility-scale power (including distributed rooftop solar) generated by wind, solar (including rooftop solar) and geothermal and the share of retail electricity sales from in-state wind, solar (including rooftop solar) and geothermal from 2007 to 2016. The estimates for the state RPS timeframe goal and for 2038 were based on a 10-year linear projection of these annual percentages.

**APPENDIX TABLE 1: Cumulative Assessment of State RPS Programs by State**

State	Overall Grades for State RPS Program			Metric 1: RPS Target		Metric 2: Dirty Energy Sources and RECs in Portfolio			Metric 3: RPS Effectiveness	
	Overall State Relative RPS Grade	Overall State Absolute RPS Score	Overall State Absolute RPS Grade	RPS Goal (Ideal: 100%)	Relative Grade	Total Dirty Energy Sources and Policies (Ideal: 0)	Dirty Score	Relative Grade	Projected 2038 Renewable Share of Generation-Consumption (Ideal: 100%)	Relative Grade
Arizona	D	36%	F	15%	F	3	57%	C	37%	D
California	C	58%	F	50%	C	4	43%	D	82%	B
Colorado	C-	48%	F	30%	D	3	57%	C	57%	C
Connecticut	D	31%	F	48%	C	4	43%	D	2%	F
Delaware	F	25%	F	25%	D	4	43%	D	6%	F
Hawaii	B-	68%	D+	100%	A	3	57%	C	46%	C-
Illinois	D	36%	F	25%	D	3	57%	C	24%	D-
Iowa	C	57%	F	0.5%	F	2	71%	B-	100%	A
Maine	D	40%	F	40%	D+	5	29%	F	51%	C
Maryland	F	21%	F	25%	D	5	29%	F	9%	F
Massachusetts	F	24%	F	15%	F	4	43%	D	15%	F
Michigan	F	20%	F	15%	F	5	29%	F	17%	F
Minnesota	D+	44%	F	25%	D	3	57%	C	49%	C-
Missouri	D-	26%	F	15%	F	3	57%	C	5%	F
Montana	D	36%	F	15%	F	3	57%	C	35%	D
Nevada	D+	44%	F	25%	D	4	43%	D	66%	C+
New Hampshire	D	32%	F	25%	D	3	57%	C	13%	F
New Jersey	D	34%	F	50%	C	4	43%	D	9%	F
New Mexico	D+	41%	F	20%	F	3	57%	C	46%	C-
New York	D+	39%	F	50%	C	3	57%	C	10%	F
North Carolina	F	18%	F	13%	F	5	29%	F	13%	F
Ohio	F	10%	F	13%	F	6	14%	F	4%	F
Oregon	D+	42%	F	50%	C	5	29%	F	47%	C-
Pennsylvania	F	13%	F	18%	F	6	14%	F	8%	F
Rhode Island	D	33%	F	40%	D+	3	57%	C	2%	F
Texas	D	39%	F	6%	F	2	71%	B-	39%	D+
Vermont	C+	62%	D-	75%	B+	3	57%	C	54%	C
Washington	D-	26%	F	15%	F	4	43%	D	22%	F
Washington, D.C.	D+	43%	F	50%	C	5	29%	F	50%	C
Wisconsin	D-	25%	F	10%	F	3	57%	C	8%	F
<b>Average</b>	<b>D</b>	<b>36%</b>	<b>F</b>	<b>30%</b>	<b>D</b>	<b>4</b>	<b>46%</b>	<b>D</b>	<b>31%</b>	<b>D</b>
<b>Typical (Median)</b>	<b>D</b>	<b>36%</b>	<b>F</b>	<b>25%</b>	<b>D</b>	<b>4</b>	<b>50%</b>	<b>D+</b>	<b>23%</b>	<b>F</b>

**APPENDIX TABLE 2: Dirty Energy Sources and RECs Allowed Under State RPS Programs by State**

STATE	Coal	Nuclear	Mill Residue	Wood	Waste Incineration	Garbage	Poultry Litter	Waste Methane/ Biogas	Landfill/ Sewage Gas	Factory Farm Digester	RECs	Total Dirty Energy Sources/ Policy	Relative Grade for Dirty Energy Sources/ Policy
Arizona	-	-	-	Y	-	-	-	Y	Y	Y	Y	3	C
California	-	-	Y	Y	-	-	-	Y	Y	Y	Y	4	D
Colorado	-	-	-	Y	-	-	-	Y	Y	Y	Y	3	C
Connecticut	-	-	-	Y	Y	Y	-	Y	Y	Y	Y	4	D
Delaware	-	-	Y	Y	-	-	-	Y	Y	Y	Y	4	D
Hawaii	-	-	-	Y	Y	Y	-	Y	Y	Y	-	3	C
Illinois	-	-	Y	-	-	-	-	Y	Y	Y	Y	3	C
Iowa	-	-	-	Y	-	-	-	Y	Y	-	-	2	B-
Maine	-	-	Y	Y	Y	Y	-	Y	Y	Y	Y	5	F
Maryland	-	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	5	F
Massachusetts	-	-	-	Y	Y	Y	-	Y	Y	Y	Y	4	D
Michigan	-	-	Y	Y	Y	Y	-	Y	Y	Y	Y	5	F
Minnesota	-	-	-	-	Y	Y	-	Y	Y	Y	Y	3	C
Missouri	-	-	-	Y	-	-	-	Y	Y	Y	Y	3	C
Montana	-	-	-	Y	-	-	-	Y	Y	Y	Y	3	C
Nevada	-	-	-	Y	Y	Y	-	Y	Y	Y	Y	4	D
New Hampshire	-	-	-	Y	-	-	-	Y	Y	Y	Y	3	C
New Jersey	-	-	-	Y	Y	Y	-	Y	Y	Y	Y	4	D
New Mexico	-	-	-	Y	-	-	-	Y	Y	Y	Y	3	C
New York	-	-	-	Y	-	-	-	Y	Y	Y	Y	3	C
North Carolina	-	-	Y	Y	Y	-	Y	Y	Y	Y	Y	5	F
Ohio	Y	Y	Y	Y	-	-	-	Y	Y	Y	Y	6	F
Oregon	-	-	Y	Y	Y	Y	-	Y	Y	Y	Y	5	F
Pennsylvania	Y	-	Y	Y	Y	Y	-	Y	Y	Y	Y	6	F
Rhode Island	-	-	-	Y	-	-	-	Y	Y	-	Y	3	C
Texas	-	-	-	-	-	-	-	Y	Y	-	Y	2	B-
Vermont	-	-	-	Y	-	-	-	Y	Y	Y	Y	3	C
Washington	-	-	Y	Y	-	-	-	Y	Y	Y	Y	4	D
Washington, D.C.	-	-	Y	Y	Y	Y	-	Y	Y	-	Y	5	F
Wisconsin	-	-	-	Y	-	-	-	Y	Y	-	Y	3	C
<b>Total</b>	<b>2</b>	<b>1</b>	<b>12</b>	<b>27</b>	<b>12</b>	<b>11</b>	<b>2</b>	<b>30</b>	<b>30</b>	<b>25</b>	<b>28</b>		
<b>Percent of States/Average</b>	<b>7%</b>	<b>3%</b>	<b>40%</b>	<b>90%</b>	<b>43%</b>	<b>40%</b>	<b>7%</b>	<b>100%</b>	<b>100%</b>	<b>83%</b>	<b>93%</b>	<b>4</b>	<b>D</b>

Based on the explicit inclusion of these power sources or tradeable credit programs in state statutes, regulations and utility commission documents; see each category for full description and methodology on page 11.

## Endnotes

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- (Mont. Code Ann. §69-3-2004(4)); Nevada (Nev. Rev. Stat. §704.7821(1)(h)); New Hampshire (N.H. Rev. Stat. Ann §362-F:3); New Jersey (N.J. Admin. Code §14:8-2.3(a); New Jersey. (N.J. Admin. Code §14:8-2.3(a)); Office of the Governor. [Press release]. “Governor Murphy signs measures to advance New Jersey’s clean energy program.” May 23, 2018; Assembly of the State of New Jersey. 218th Legislature. A.3723. §2(d)(2). March 22, 2018); New Mexico (N.M. Stat. §17.9.572.10(B)(3)); New York (New York Public Service Commission (NYPSC). “Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard.” Case 15-E-0302. August 16, 2016 at 2 and 65); North Carolina (N.C. Gen. Stat. §62-133.8(b)(1)); Ohio (Ohio Admin. Code 4928.64(B)(2)); Oregon (Or. Rev. Stat. 469A.052(1)(h)); Pennsylvania (52 Pa. C.S. §75.61(b)(15)); Rhode Island (Ri. Pub. Util. Stand. §39-26-4(a)(1 to 4)); Texas (Tx. Code § 25.173(a)(1)); Vermont (Vt. Stat. Ann. tit. 30, §8005(a)(1)(B)); Washington (Wash. Rev. Code §19.285.040(2)(a)(iii)); Washington, D.C. (D.C. Pub. Util. Code §34-1432(c)(22)); Wisconsin (Wi. Pub. Util. Code §196.378(2)(a)(1)).
- 22 See Methodology. Eleven states and the District of Columbia allow municipal solid waste incineration: Connecticut (Conn. Gen. Stat. Chapter 277 §16-1(21); Hawaii (Haw. Rev. Stat. §269-91(7)); Maine (Me. Rev. Stat. §3210(2)(C)(2)(h)); Maryland (Md. Code, Com. Law §7-701(r)(10) and §7-703); Massachusetts (Mass. Gen. Laws ch. 25A§11F(d)(7)); Michigan (Mich. Comp. Laws 460.1011 §11(g)(vii)(A) and 460.1028); Minnesota (Minn. Stat. §216B.1691(1)(a)(5)); Nevada (Nev. Rev. Stat. §704.7811(1)(a) and NRS §704.007(4)); New Jersey (N.J. Admin. Code §14:8-2.6(b)(2) and § 14:8-2.2 (“Resource recovery facility”)); Oregon (Or. Rev. Stat. §469A.025(6)(a-b)); Pennsylvania (52 Pa.C.S. §75.1 Tier II Alternative energy source (v)); Washington, D.C. (DC Code §34-1431(16)(B) and DC Code § 34-1432). Two states grandfathered existing solid waste incineration plants, but did not allow new facilities to be included in the RPS. California (California Public Utilities Code §399.12 (e)(2)(A and B)) and Wisconsin (Wi. Pub. Util. Code §196.378(1)(am and ar)).
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  - 28 *Ibid.* Maryland, in-state RPS retired certificates for reporting years 2014, 2016.
  - 29 *Ibid.* Ohio, out-of-state RPS retired certificates for reporting year 2016.
  - 30 North Carolina Department of Environment and Natural Resources. Air Quality Division. “Comparison of Emissions From Controlled Coal and Biomass Combustion.” Air Quality Committee Meeting, North Carolina Environmental Management Commission. March 10, 2010 at 3.
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ONE OCEAN  
LAPPING ALL OUR SHORES

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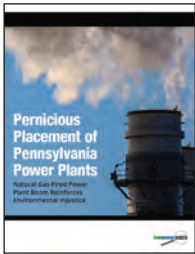
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